Message Waiting Indicator - Packet Access (1011)

This capability allows an ESP to indicate to its subscriber that a message is waiting for retrieval. With this capability, the ESP can activate/deactivate an audible signal, e.g., stutter dial tone, on the ESP's client's line. This capability provides the ESP access to the MWI function in many end offices via dialup or dedicated access to the LEC packet switched network. The packet switched network will deliver the message waiting indicator activation/deactivation request to the ESP's client's end office.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Waiting Indicator - Packet Access	SWB - Digital Customer Alerting	BSE

FEATURE OPERATION:

This capability allows packet switched access to the central office Simplified Message Desk Interface (SMDI) feature for providing ESP client delivery of the Message Waiting Indication (MWI) activation and deactivation messages for stutter dial tone. Access is made to the SMDI port through the public packet switched network.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The SMDI feature is available in the following central office switches:

Switch Type	5ESS	DMS-100
Earliest Generic Release	5E4.2	BCS30

2. This capability could be used in conjunction with services Call Forwarding - Busy Line & Call Forwarding - Don't Answer and Direct Inward Dialing. Due to the limitation of central office switches which can be equipped with SMDI, this capability will be offered only in selected 5ESS and DMS-100 equipped serving offices.

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Preselection for Data Services (1013)

Preselection for Data Services is an optional International Telecommunication Union-Telecommunication Standardization Sector (ITU-TS) [formerly CCITT] defined Public Packet Switched Network (PPSN) per call subscription feature that provides the user with the ability to select a preferred Interconnect Carrier (IC) on internetwork/interLATA calls. This feature will automatically select an IC when the calling DTE (Data Terminal Equipment) does not identify the Data Network Identification Code (DNIC) of the called IC in the Recognized Private Operating Authority (RPOA) field.

Generic Name of ONA Service	Product Name	BSE or CNS
Preselection for Data Services	BA - RPOA Preselection	BSE or CNS
	BS - RPOA Preselect	BSE or CNS
	NX - RPOA Preselection	BSE or CNS
	PB - IC/VAN Preselection	BSE or CNS
	SWB - RPOA Preselection	CNS

FEATURE OPERATION:

The PPSN Access Concentrator (AC) and ISDN Packet Handling Facility (PHF) should provide the capability for an originating DTE user to select a preferred IC at subscription. The AC and PHF should access the preselected DNIC/ INIC from the subscriber's profile and route the call to the IC over an X.75 interface.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The PPSN AC should support asynchronous and X.25 direct or dialup interfaces.
2. The ISDN PHF should support X.25 direct interfaces.
3. References:
   - GR-301 PPSNGR, Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Reverse Charge Acceptance - Packet (1014)

Reverse Charge Acceptance is an optional per-call Public Packet Switched Network (PPSN) subscription feature that allows a call from an originating Data Terminal Equipment (DTE) to be charged to the terminating DTE. Upon receiving a reverse charge indication the incoming DTE may accept or reject the call.

Generic Name of ONA Service	Product Name	BSE or CNS
Reverse Charge Acceptance - Packet	AM - Reverse Billing	BSE
	BA - Reverse Charge Acceptance	BSE
	BS - Reverse Charging	BSE or CNS
	NX - Reverse Charge Acceptance	BSE or CNS
	PB - Reverse Charge Acceptance	BSE
	SWB - Reverse Charge Acceptance	BSE
	USW - Reverse Charge Acceptance	BSE

FEATURE OPERATION:

The PPSN Data Circuit Terminating Equipment (DCE) and the ISDN Packet Handling Function (PHF) should deliver the reverse charging call request to the called DTE/DCE or CPE/PHF only when the interface is configured for reverse charging, otherwise the call is cleared. A Network User Identification (NUI) parameter may be signaled in the call accept packet.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. Reverse billing for the packet charges is allowed by assigning the packet feature "Reverse Charge Acceptance" to the ESP's voice grade line circuit switched termination on the Packet Switch.

2. The reverse charging acceptance allows the X.25 ESP to accept their end users' applicable packet charges on calls that their customers initiate with a billing designation of the terminating Data Terminal Equipment (DTE). During the call setup, the originating DTE signals that reverse charging is being requested by setting the reverse charging facility field in the call request packet. This is done on a per call basis. If the terminating DTE subscribes to the reverse charge acceptance service, then the terminating DTE will receive the associated call packet with the reverse charging field set. If the terminating customer does not subscribe to the reverse charging acceptance service, the call will be cleared and the originating DTE will receive a response indicating that the reverse charge acceptance is not an acceptable option.

3. References:

   - GR-301 PPSNGR, Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, may be associated with the Packet Switched X.25 and X.75 basic serving arrangements.

3. Technical Descriptions for Dedicated Access Arrangements

Access To Clear Channel Transmission (1026)

This capability provides for 64 Kbps clear channel transmission on 1.544 Mbps dedicated lines.

Generic Name of ONA Service	Product Name	BSE or CNS
Access To Clear Channel Transmission	AM - Access To Clear Channel Conditioning	BSE
	BA - Clear Channel Capability	BSE
	BS - Access To Clear Channel Transmission	BSA *
	NX - Access To Clear Channel Transmission	BSE
	PB - Access To Clear Channel Transmission	BSE
	SWB - Clear Channel Capability On 1.544 Mbps	BSE
	USW - Clear Channel Capability	BSE

FEATURE OPERATION:

This service offers 64 Kbps channel capacity on a dedicated point-to-point 1.544 Mbps high capacity circuit between two customer designated premises. It allows a customer to transport an all-zero octet over a DS1/1.544 Mbps high capacity channel, providing an available combined maximum 1.536 Mbps data rate. This arrangement requires the customer signal at the channel interface to conform to Bipolar with eight (8) Zero Substitution (B8ZS) line code as described in Technical References TR-NPL-000054 and TA-TSY-000342.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This service requires the customer to obtain a dedicated 1.544 Mbps point-to-point circuit for transport of multiple 64 Kbps channels and is subject to the availability of facilities.

2. References:

   - GR-54 DS1 High-Capacity Digital Service End User Metallic Interface Specifications, Issue 1, December 1995 (replaces TR-NPL-000054, Issue 1).

   - GR-342 High-Capacity Digital Special Access Service Transmission Parameter Limits and Interface Combinations, Issue 1, December 1995 (replaces TR-INS-000342, Issue 1).

   - Pacific Bell document PUB L-780077 Service Description and Interface Requirements for Alternate Access Arrangements to Pacific Bell/Nevada Bell Digital Data Services, Issue 3, September 1993.

   - U S WEST publication 77323 DS-1 Clear Channel Capability, Issue B, June 1989.

This service is associated with the Dedicated High Capacity Digital (1.544 Mbps) basic serving arrangement.

* BellSouth will offer this as a BSA alternative.

Access To Operations Support Systems Information (1027)

This service will offer the ESPs a common, mechanized presentation system for access to Network Management products, such as network reconfiguration, while also providing customer access to internal operations support systems for additional information and control of their network.

Access to this service will be through a customer provided terminal, with the choice of dial access or dedicated private line. This service will provide a secure and user friendly interface to the customers in providing capabilities and support in some or all of the following areas of service management: (1) Administration, (2) Security, (3) Performance, (4) Fault Management, (5) Reconfiguration, and (6) Accounting.

Generic Name of ONA Service	Product Name	BSE or CNS
Access To Operations Support Systems Information	BS - Administrative Management Service (AMS)	BSE or CNS

FEATURE OPERATION:

The customer will be able to access a common, mechanized presentation system on either a dial-up or dedicated basis. It will allow the customer access to information from selected telephone company administrative Operations Support Systems through a secure gateway and provide basic, integrated access to other existing network management products.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is independent of central office switch type.

2. References:

   - BellSouth technical reference TR 73531 Interfaces Between Miscellaneous Control and Status Functions of BellSouth SPCS Central Offices and Customer Premises Equipment, May 1989.

This service, if offered as a BSE, is associated with the Dedicated Digital (< 64 kbps) basic serving arrangement.

Automatic Protection Switching (1028)

Automatic Protection Switching provides the ability to monitor a non-switched facility between the ESP premises and the wire center serving the premises and to automatically switch to a spare facility if the performance of the original facility degrades or fails. It requires compatible equipment at both the ESP premises and the serving wire center.

Generic Name of ONA Service	Product Name	BSE or CNS
Automatic Protection Switching	AM - Automatic Loop Transfer	BSE
	BA - Automatic Loop Transfer	BSE
	BS - Automatic Protection Switching	BSE or CNS
	NX - Automatic Loop Transfer	BSE
	PB - Automatic Loop Transfer	BSE
	PB - Digital Data Service	BSE
	SWB - Automatic Loop Transfer	BSE
	USW - Automatic Loop Transfer	BSE

FEATURE OPERATION:

Automatic Protection Switching (APS) can be offered in two configurations. It can be offered as a stand alone APS for use with T1 carrier or as DS1 APS incorporated into a DS3/1 multiplexer unit.

The stand alone unit, in conjunction with an identical unit at the opposite end of the T1 carrier facility to be protected, switches from the primary T1 carrier facility to a standby facility upon detection of a loss of the 1.544 Mbps signal or of an unacceptable Bit Error rate. There are two T1/1.544 Mbps inputs from the line side of the unit, a primary input and the standby input. The inputs normally terminate on a cross connect device and are connected to the DS1 Access Link carrier facilities between the Serving Wire Center and the Customer Premises.

There is one 1.544 Mbps output port on the APS unit. In the central office it will be terminated on a digital cross connect frame for interconnection with other DS1 facility terminations or switch appearances. On a customer premises, it will be terminated on a standard Network Interface.

The DS1 APS method is accomplished by means of circuitry contained within the DS3/1 multiplexer. The low speed DS1 cards can have an optional APS capability on a DS3 basis. Some levels of protection are 1 for 4 and 1 for 7, depending upon the manufacturer of the multiplexer unit. This equipment is part of a DS3 or higher level transmission system and can not be applied to metallic-based T1 carrier. The facility side DS1 is internal to the multiplexer. The DS1 output of the multiplexer is terminated on a DS1 cross connect frame in the Serving Wire Center.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This capability must be deployed on a circuit by circuit basis when offered in a stand alone configuration.

2. There is no feature interaction.

3. References:

   - GR-474 OTGR Section 4: Network Maintenance: Alarm and Control for Network Elements, Issue 1, December 1997 (replaces TR-NWT-000474, Issue 4)

   - GR-833 Network Maintenance: Network Element and Transport Surveillance Messages, Issue 2, November 1996 (replaces TR-NWT-000833, Issue 5)

   - DS1 AFPS For Digital Terminal System, TA-TSY-000435, Issue 1, February 1987

   - TR-TSY-000238 Digital Channel Bank DTMF Code Select Signaling Channel Unit, Issue 1, December 1986

   - Automatic Protection Switching for SONET, SR-NWT-001756, Issue 1, October 1990

This service, if offered as a BSE, may be associated with the Dedicated Digital (< 64 kbps), Dedicated High Capacity Digital (1.544 Mbps) and Dedicated High Capacity Digital (> 1.544 Mbps) basic serving arrangements.

Bridging (1029)

Bridging allows the connection of three or more customer designated premises through a telephone company hub or bridge. The following are different types of bridging:

- Central Office Bridging provides the ability to connect multiple customer designated premises with 2 or 4 wire voice grade circuits.
- Series Bridging provides a tip-to-tip and ring-to-ring series completion of a metallic pair to up to 26 customer designated premises in a central office.
- Telegraph Bridging provides the ability to connect multiple customer designated premises with 2 or 4 wire telegraph circuits.
- Three Premises Bridging provides a tip-to-tip and ring-to-ring connection in a central office of a metallic pair to a third customer designated premises.

Generic Name of ONA Service	Product Name	BSE or CNS
Bridging	AM - Bridging	BSE
	BA - Bridging	BSE
	BS - Bridging	BSE or CNS
	NX - Central Office Bridging	BSE
	NX - Series Bridging	BSE
	NX - Telegraph Bridging	BSE
	NX - Three Premises Bridging	BSE
	NX - Bridging	BSE
	PB - Bridging	BSE
	SWB - Bridging	BSE
	USW - Bridging	BSE

FEATURE OPERATION:

See above description.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is independent of central office switch type.
2. Note that some LECs may not offer this feature in conjunction with the Category 3, Type K - Dedicated Digital (64 Kbps) BSA.

3. References:

   - LSSGR FR-64 (formerly FR-NWT-000064), Definition only, Bridge Lifters, Module SR-504, Issue 1, March 1996 (replaces TR-NWT-000504, Issue 2)

   - FSD 20-02-2010 Bridge Services On An IDLC System, Issue 2, April 1991

This service, if offered as a BSE, may be associated with the Dedicated Metallic, Dedicated Telegraph, Dedicated Voice Grade, Dedicated Program Audio and Dedicated Digital (< 64 kbps) basic serving arrangements.

Conditioning (1030)

Conditioning provides assured transmission quality on analog private lines for technical parameters such as frequency response, envelope delay distortion, signal to C-notched noise ratio and nonlinear distortion.

Generic Name of ONA Service	Product Name	BSE or CNS
Conditioning	AM - Conditioning	BSE
	BA - Conditioning	BSE
	BS - Conditioning	BSE or CNS
	NX - Conditioning	BSE
	PB - Channel Conditioning	BSE
	SWB - Conditioning	BSE
	USW - Private Line Conditioning	BSE

FEATURE OPERATION:

See above.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is independent of central office switch type.

2. References:

   - Data Communication Using Voiceband Private Line Channels (MDP-326-584), Issue 1, October 1973.

   - High Performance Data Conditioning - Type D5 for Multipoint Private Line Data Channels (MDP-326-461), Issue 1, September 1982.

This service, if offered as a BSE, is associated with the Dedicated Voice Grade basic serving arrangement.

Data Over Voice (DOV) Service (1031)

Data Over Voice (DOV) service provides a point-to-point derived data channel over the same pair of wires used to provide local service. DOV can be used to connect a client to an ESP or between two ESP locations.

Generic Name of ONA Service	Product Name	BSE or CNS
Data Over Voice (DOV) Service	BA - Dedicated Derived Channel	BSA*
	BS - Derived Data Channel	CNS
	NX - DOVPATH®	BSA**
	PB - Digital Data Over Voice	CNS
	SWB - DovLink℠	CNS
	USW - Simultaneous Voice and Data Service	BSA***

FEATURE OPERATION:

DOV is established via a service order placed with the telephone company. Each line to be provisioned for DOV will be equipped with a Voice Data Multiplexer (VDM) at the end user's location (CPE) and in the serving central office. The VDM at the serving central office directs voice traffic to the circuit switched network and the data traffic to another VDM, special access line, or to a data switch. Back-to-back VDMs will allow the ESP to connect to a client or another ESP location.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is independent of central office switch type.
2. The derived data channel may support speeds up to 19.2 Kbps.
3. Interoffice back-to-back VDM arrangements may be offered by some LECs.
4. The pair of wires between the end user's location and the central office must be non-loaded.
5. This service is not compatible with range extension or subscriber carrier equipment.

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* Bell Atlantic will provide this with the Dedicated Derived Channel BSA.

® DOVPATH is a registered service mark of NYNEX.

** NYNEX will provide this with the Dedicated Derived Channel BSA.

℠ DovLink is a registered service mark of Southwestern Bell Telephone Company.

*** U S WEST will provide this with the Dedicated Derived Channel BSA.

6. References:

- SR-NPL-000665 Network Interface Specification: DOV/DVM Type 1, Issue 1, January 1987.
- Bell Atlantic technical references TR 72009 Bell Atlantic Data/Voice Multiplexer Service Network Access Interface Specifications, January 1986 and TR 72017 Bell Atlantic Data/Voice Multiplexer Service Interface Specifications, March 1987.
- NYNEX Technical Reference NTR-74374 "Universal Data Voice Multiplexer Access to Digital Data Over Voice (DOV) Network Interface Specification, Issue 2, May 1990."
- U S WEST Document 77330 "Data Over Voice Multiplexer Network Access Interface Specifications for Phase Coherent FSK" Issue A, February 1989.
- U S WEST Document 77331 Simultaneous Voice and Data Service (SVDS) (Digital Data Over Voice Technology) Digital Access Arrangements, Network Interface Specifications, Issue D, July 1995.
- Southwestern Bell Telephone Document TP76620 Digital Data Over Voice (DDOV) Network Interface Specification, Issue B, January 1993.

Derived Channels (Monitoring) (1032)

This capability provides an ESP's client with a connection via low-speed derived channel to a scanning device located in the central office. The scanning device communicates with a subscriber terminal unit (STU) on the ESP client's premises. The scanner transmits to the ESP (1) alert signals from the STU and (2) notification of breaks in the subscriber's local loop. Breaks can generally be detected within a 30- to 90-second interval.

Generic Name of ONA Service	Product Name	BSE or CNS
Derived Channels (Monitoring)	AM - Notification of Subscriber Line Breaks	CNS
	BA - REACT[SM]	CNS
	BS - WATCHALERT®	CNS
	NX - PULSENET[SM]	CNS
	PB - POLLSTAR[SM]	CNS
	PB - ALARM PLUS [SM]	CNS
	USW - ScanAlert[SM]	CNS

FEATURE OPERATION:

1. ESP clients with this capability will have their line connected to a scanning device in the central office upon receipt of an order by the telephone company.

2. A Subscriber Terminal Unit (STU) is placed on the client's premises by the ESP and is connected to the line and the client's alarm sensor.

3. The scanner will periodically poll each client's line for a supervisory low tone. The tone status will indicate a line outage, alarm, or if the line is okay.

4. Upon detection of a line outage or an alarm signal, the scanner will transmit an alarm message to a telephone company provided host computer which then transmits the alarm message to the appropriate ESP over a private line connection.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is independent of the central office switch type.

2. The client's line must be one-party.

3. This service may not work when certain range extension or subscriber carrier equipment is used on the client's line (end to end metallic facilities may be required).

[SM] REACT is a service mark of Bell Atlantic Corporation.

® WATCHALERT is a registered service mark of BellSouth Corporation.

[SM] PULSENET is a registered service mark of NYNEX.

[SM] POLLSTAR is a service mark of Pacific Bell. ALERT PLUS is a service mark of Nevada Bell.

[SM] ScanAlert is a service mark of U S WEST.

4. The STU must be connected to the client's line using an appropriate interface device. The STU and clients other CPE must be compatible with the central office scanner.

5. The coded low tone transmitted by the STU is at 37 Hz frequency.

6. Polling of the client's line varies from approximately every 6 seconds to approximately every 30 seconds depending on the type of scanner deployed by the telephone company.

7. The ESP connection to the telephone company host computer is via a 3000 series private line.

8. References:

   - Ameritech reference AM TR-MKT-000038 Ameritech Scan-Alert Transport Service Deployed With Base 10 Technology, Issue 1, May 1989.
   - BellSouth technical reference TR-73518 Description of the Network Interface for WATCHALERT® Service, October 1988.
   - BellSouth technical reference TR-73530 Description of the Network Interface at an Alarm Agency to WATCHALERT® Service, June 1989.
   - U S WEST Document 77333 U S WEST Alarm Signaling Transport - Scan-Alert℠, Issue A, July 1992.

This service, if offered as a BSE, may be associated with the Dedicated Voice Grade and Dedicated Alert Transport basic serving arrangements.

® WATCHALERT is a registered service mark of BellSouth Corporation.
℠ Scan-Alert is a service mark of U S WEST.

Extended Superframe Conditioning (1033)

This feature enables the ESP to access up to 4 kbps of an 8 kbps extended superframe (ESF) data channel in a properly equipped Dedicated High Capacity Digital (1.544 Mbps) service for control and performance monitoring of the end-to-end service. Within the 8 kbps ESF conditioning data channel, the remaining 4 kbps are reserved for terminal synchronization and cyclic redundancy checking.

Generic Name of ONA Service	Product Name	BSE or CNS
Extended Superframe Conditioning	AM - Access To Extended Superframe Data Channel	BSE
	BA - High Capacity Digital Service	BSA *
	BS - Dedicated High Capacity Digital (1.544 Mbps)	BSA *
	NX - Access to Extended Superframe Data Channel	BSA *
	SWB - Extended Superframe Format	BSE
	USW - Access To Extended Superframe Data Channel	BSA *

FEATURE OPERATION:

ESF is an optional DS1 bit stream framing method available to the customer who purchases a high capacity 1.544 Mbps service. The overhead bits in the 1.544 Mbps bit stream are used for performance monitoring of the DS1 line. ESF extends the DS1 superframe structure from 12 to 24 frames and divides the framing bit previously used for basic frame synchronization into channels for redundancy checks, data link and framing. ESF creates additional channel capacity that can be made available for various network and customer functions.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This service requires a customer to obtain a DS1 high capacity 1.544 Mbps channel.

2. The DS1 equipment must have the ESF option capability. New vintage D4 and D5 channel bank equipment has ESF as an available option.

3. References:

   - GR-499, Transport Systems Generic Requirements (TSGR): Common Requirements, Issue 1, December 1995 (replaces TR-NWT-000499, Issue 5).

This service, if offered as a BSE, may be associated with the Dedicated High Capacity Digital (1.544 Mbps) basic serving arrangement.

*

For Bell Atlantic, BellSouth, NYNEX and U S WEST, this is an alternative of the Dedicated High Capacity Digital BSA.

Route Diversity (1096)

Route Diversity provides an increased safety factor for ESP facilities that could be subject to disruption from cable cuts and other unavoidable catastrophes. It provides for diverse routing when necessary in order to comply with special ESP requirements.

Generic Name of ONA Service	Product Name	BSE or CNS
Route Diversity	AM - Special Facilities Routing	BSE
	BA - Route Diversity	BSE
	BS - Route Diversity	BSE or CNS
	NX - Special Facilities Routing	BSE
	SWB - Diversity	BSE

FEATURE OPERATION:

Three example serving arrangements provide the desired overall special facilities routing:

1. Local Diversity provides a transmission path for services between the customer's designated premises and the serving wire center that is diverse from the normal transmission path.

2. Inter Wire Center Diversity provides a transmission path diverse from the normal path, for services between a set of wire centers.

3. The Serving Wire Center Avoidance arrangement provides a transmission path for services between the customer's designated premises and a wire center which is not normally the serving wire center.

This capability is provided with the following conditions in mind: diversity involves providing services over different physical routes, and avoidance involves providing one or more services on a route which avoids specific geographic locations.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is independent of central office switch type.

2. The diversity may consist of separate facilities within the same sheath, facilities in separate sheaths over the same facilities route, or entirely separate facility routes.

3. All route diversity combinations are not available for all ESP locations. ESPs desiring route diversity should contact their LEC account representative to determine what is available to them.

4. Reference:

   - Traffic Routing Administration Catalog of Products - LERG Southwestern Bell area data, LATAs 5XX.

This service, if offered as a BSE, is associated with all basic serving arrangement types. To avoid duplication, it is listed in this section only.

Secondary Channel Capability (1034)

The secondary channel feature provides the customer with access to a low speed monitoring channel associated with a primary dedicated digital private line channel. The secondary channel simultaneously transmits at a lower bit rate.

Generic Name of ONA Service	Product Name	BSE or CNS
Secondary Channel Capability	AM - Secondary Channel	BSE
	BA - Secondary Channel	BSE
	BS - Secondary Channel Capability	BSE or CNS
	NX - Diagnostic Channel On DS0 Lines	BSE
	PB - Secondary Channel	BSE
	SWB - Secondary Channel Capability	BSE
	USW - Secondary Channel	BSE

FEATURE OPERATION:

The secondary channel capability offers a companion digital transmission channel independent of the primary channel and at a lower bit rate.

The basic dedicated digital private line offers two-point and multi-point synchronous full duplex data transmission at 2.4 Kbps, 4.8 Kbps, 9.6 Kbps and 56 Kbps. Secondary channel data transmission rates are subrates of the basic dedicated digital private line speeds, i.e., 133 bps, 266 bps, 533 bps and 2.666 Kbps. The secondary channel will utilize the same basic network equipment and transmission facilities as the primary channel and will have comparable quality.

A 2-point circuit connects two customer stations in a balanced mode of operation.

From different remote stations on a multipoint circuit, transmission on the primary and secondary channels are independent of each other, that is, a remote station can communicate with the control station on the primary channel while another station simultaneously transmits on the secondary channel to the control station.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The customer's overall performance will depend on the characteristics of the CPE and customer premises cabling that is provided and maintained by the customer, as well as those of the DDS network. These performance objectives are attainable if the CPE connected to the DDS network meets the requirements of TR-NPL-000157.

2. Due to use of the same network equipment and transmission facilities for related primary and secondary channels, the quality of the related channels should be approximately equal.

3. Multipoint capability may not be available in all locations.

4. Note that some LECs may not offer this feature in conjunction with the Category 3, Type K - Dedicated Digital (64 Kbps) BSA.

5. References:

   - TR-NPL-000157 Secondary Channel in the Digital Data System: Channel Interface Requirements, Issue 2, April 1986.

This service, if offered as a BSE, is associated with the Dedicated Digital (< 64 kbps) basic serving arrangement.

Statistical Multiplexer (1035)

This capability provides the ESP with access to a more efficient form of time division multiplexers that work by a dynamic allocation of time slots. Multiple data streams can be multiplexed into a single high speed data stream on a single link. Statistical multiplexing requires CPE that is compatible with the central office based multiplexing equipment. Such multiplexing must be transparent to the speed, code and protocol of the user's data signal; protocol conversion is not to be provided by such equipment.

Generic Name of ONA Service	Product Name	BSE or CNS
Statistical Multiplexer	BA - Statistical Multiplexer in C.O.	BSE

FEATURE OPERATION:

There is no activation required by the ESP once the service is established. As part of establishing the service, it must be verified that the ESP's equipment and the central office equipment are compatible.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. Present statistical multiplexers use a proprietary protocol that is particular to each vendor. Therefore, each vendor's statistical multiplexer will communicate only with equipment that uses that vendor's protocol.

2. There are no feature interactions. This capability is used only as a transport medium from the ESP to the central office.

3. References:

   - No generic reference documents available.

This service, if offered as a BSE, is associated with the Dedicated Digital (< 64 kbps) basic serving arrangement.

Verify Integrity of Subscriber Lines (1036)

This capability allows an ESP to be signaled by central office equipment every 60 seconds or less to report on the integrity of the ESP's client's lines that are being monitored for breaks. Scanning equipment located in the central office and equipment located on the ESP's client's premises check the client's line within 60 second intervals. If the ESP's client's line has been disabled, the BOC central office equipment will automatically notify the ESP of its client's line disablement.

Generic Name of ONA Service	Product Name	BSE or CNS
Verify Integrity of Subscriber Lines	AM - Notification of Subscriber Line Breaks	CNS
	AM - Detection of Subscriber Line Breaks	BSA *
	NX - PULSENET[SM]	BSA
	PB - POLLSTAR[SM]	BSE
	PB - ALARM PLUS[SM]	BSE
	USW - ScanAlert[SM]	CNS

FEATURE OPERATION:

1. ESP clients with this capability will have their line connected to a scanning device in the central office upon receipt of an order by the telephone company.

2. Compatible CPE is placed on the client's premises by the ESP and is connected to the telephone line.

3. The scanner will periodically poll each client's line for a signal. Lack of a signal will indicate a line break.

4. Upon detection of a line break, the scanner will transmit a report to the ESP over a dedicated link or a dial-up connection.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This service is independent of central office switch type.

2. The client's line must be one-party service.

3. This service may not work when certain range extension or subscriber carrier equipment is used on the client's line.

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* This capability is inherent with Alarm Services (DNAL) for Ameritech.

[SM] PULSENET is a registered service mark of NYNEX.

[SM] POLLSTAR is a service mark of Pacific Bell, ALARM PLUS is a service mark of Nevada Bell.

[SM] ScanAlert is a service mark of U S WEST.

4. References:

   - Ameritech - AM-TR-MKT-000038
   - Ameritech - AM-TR-MKT-000039
   - U S WEST - Document 77333 - U S WEST Alarm Signaling Transport - ScanAlert[SM] , Issue A, July 1992

This service, if offered as a BSE, may be associated with the Dedicated Alert Transport or Dedicated Network Access Link basic serving arrangements, as stated in each individual ONA plan.

[SM] ScanAlert is a service mark of U S WEST.

4. Technical Descriptions for Dedicated Network Access Link Serving Arrangements

Automatic Circuit and Trunk Monitoring Service *

* This service has been deleted by U S WEST based on availability of updated information, after the July 1991 issue of the ONA Services User Guide.

Calling Directory Number Delivery - via BCLID (1063)

Calling Directory Number Delivery - via BCLID (CDND/BCLID) will allow the Centrex, Multiline Hunt Group (MLHG) or PBX with DID customer to receive call-related information on calls that are received from outside the Centrex group, MLHG or PBX. The information is transmitted over a dedicated data channel.

Generic Name of ONA Service	Product Name	BSE or CNS
Calling Directory Number Delivery - via BCLID	BA - Bulk Caller Line Identification	BSE
	BS - Call Tracking - BCLID	BSE
	PB - Bulk Calling Line Identification (BCLID)	BSE
	USW - Calling Number Identification (BCLID)	BSE

FEATURE OPERATION:

The customer must contact the telephone company to have the CDND/BCLID service initiated. A service order is required. This service is initiated on an individual customer basis for a PBX customer and on a customer group basis for a Centrex or MLHG customer. Parameter changes and possible hardware installation are required. In addition, the customer will require CPE (e.g., a TTY, minicomputer, etc.) capable of receiving the ASCII formatted signaling that will be sent over a dedicated data channel. Once the service is initiated it will remain activated continuously until a request is made to discontinue the service.

The output message containing the CDND/BCLID data goes over the dedicated data channel to the customer before ringing is applied to the called line. The transmitted information is as follows:

- CDND/BCLID Identifier
- The date of the call
- The time the call was made
- The calling directory number
- The line multistatus ("M" for PBX", MLHG, etc. and "T" for true DN)
- The called directory number or terminal number and group number
- The busy/idle status of the called directory number

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS
Earliest Generic Release	1AE10*

Note: * Available on an intraoffice basis with generic 1AE9.

2. The serving central office switch must be equipped with the appropriate CLASS[SM] CDND/BCLID software and hardware. In order to provide call related information on an interoffice basis, both the originating and terminating switches must be equipped with the CLASS and Common Channel Signaling (CCS) SS7 software and hardware and the interoffice trunks must be converted to SS7. This service is only offered on an intraLATA basis at this time.

3. When a customer has more than 10,000 calls per CDND/BCLID channel per hour, call related data for some calls may be lost.

4. Each CDND/BCLID directory number can have only one primary input/output channel and one backup channel to the 1A ESS switch.

5. A PBX customer that wants to subscribe to BCLID must be assigned to a multiline hunt group or must be a PBX with DID.

6. CDND/BCLID output is not stored in the switch, therefore CPE must be available to collect the information.

7. The customer cannot activate or deactivate this service, it must be done via the service order process.

8. References:

   - TR-NWT-000032 CLASS[SM] Feature: Bulk Calling Line Identification, Issue 2, September 1991, Revision 1, December 1991.

This service may be associated with the Dedicated Network Access Link or Circuit Switched Line basic serving arrangements, as stated in each individual ONA plan.

[SM] CLASS is a service mark of Bellcore (Bell Communications Research, Inc.)

Make Busy Key (1071)

This capability is provided via a dedicated link connected to a line scan point or equivalent, and is associated with a MLHG, DID or equivalent. By activating an ESP provided key at the ESP end of this link, the ESP can place one or more lines or trunks in a busy or overflow condition. Subsequent calls may either be directed to a tone, announcement or possibly an alternate route.

Generic Name of ONA Service	Product Name	BSE or CNS
Make Busy Key	AM - Make Busy Arrangements	BSE
	BA - Make Busy Arrangements	BSE
	BS - Subscriber Transfer Service/Break In Rotary	BSE or CNS
	BS - Make Busy/Night Transfer (Access)	BSE
	NX - Night Transfer	BSE or CNS
	NX - Trunk Group Make Busy	BSE
	PB - Availability Control Arrangement	BSE
	SWB - Remote Make Busy	BSE
	SWB - Remote Make Busy - Trunk Side	BSE
	USW - Make Busy	BSE

FEATURE OPERATION:

1. The customer (ESP) requests this service and the associated Dedicated Network Access Link (DNAL) from the telephone company via service order.

2. The ESP must specify which line(s), trunk(s), group of lines or group of trunks is to be associated with the service.

3. Upon activation of a customer provided key, or similar device, the associated lines or trunks will be placed by the central office switch in a busy condition. The lines or trunks remain in the busy conditions until released by the customer.

4. Calls to busy lines or trunks will receive normal busy condition treatment which may include tones, announcements or alternate routing including call forwarding.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8A	5E2(2)	BCS17

2. A line or trunk may be associated with only one key.

3. Originating service is not affected by key activation.

4. The maximum number of lines or trunks that can be controlled via a single key varies by switch type.

5. Normal operation of the alternate routing or various Call Forwarding capabilities is not affected by this service.

6. References:

   - LSSGR FR-64 (formerly FR-NWT-000064), FSD 01-02-0802, Multiline Hunt Service, Issue 1, May 1990, Module TR-TSY-000569, see "make-busy key."

This service, if offered as a BSE, may be associated with the Dedicated Network Access Link or Circuit Switched Line basic serving arrangement, as stated in each individual ONA plan.

Message Desk (SMDI) (1072)

This capability will provide the ESP with real time call status information on telephone calls that are terminated to a multiline hunt group. The information delivered in this package includes the following:

MLHG and terminal identification of call handler, call reason (call forward type or direct call), original calling directory number, and originally called number in the forwarding situation.

The call status information is transported from the serving central office via a data link to the ESP message desk terminal equipment.

If the ESP has a MLHG and an associated SMDI (Simplified Message Desk Interface) data link, the ESP will get both the call status information and the ability to activate the message waiting indicator. Current limitations require the ESP to obtain a MLHG and a dedicated data access link to interface with every switch in which the ESP desires the capability to receive the call status information.

Multiple Users capability provides the delivery of calling number, called number, reason for forwarding of calls forwarded or placed to the ESP, identifies the multiline hunt group assigned to ESP customers (multiple users capability) and allows for the activation/deactivation of a stutter dial tone on the ESP's customer line. This allows the ESP to use one data link for multiple groups of end users and the activation of message waiting indicator. The reason for forwarding includes: Call Forwarding Busy, Call Forwarding Don't Answer, Call Forwarding Variable (forwarding of all calls), and Direct Call.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Desk (SMDI)	AM - Simplified Message Desk Interface	BSE
	AM - Simplified Message Desk Interface-Expanded	BSE
	BA - Messaging Services Interface	BSE
	BS - SMDI	BSE
	NX - SMDI	BSE
	PB - Forwarded Call Information	BSE
	PB - Forwarded Call Information - Multiple Users	BSE
	PB - Forwarded Call Information - Non Centrex	BSE
	SWB - Simplified Message Desk Interface	BSE
	SWB - Simplified Message Desk Interface - Expanded	BSE
	USW - Message Delivery Service	BSE

FEATURE OPERATION:

There is no required action by the ESP's customer to activate the SMDI feature. When an ESP customer's call is terminated to a MLHG served by the SMDI feature, call information including the called DN, the type of call forwarding used for the call, and the calling DN (intraoffice only) is delivered by way of a dedicated data link to the ESP. The ESP must then use some type of CPE to receive and interpret the SMDI data. If this CPE is equipped to display the client's

account information to the attendant coincident with receipt of the client's call, the attendant can answer the call on a personalized basis using an appropriate answering phrase.

Message Desk provides the capability to initiate a request over the SMDI link to activate/deactivate the Message Waiting Indicator (MWI) on an individual client's line.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8A	5E4.2*	BCS29**

Note: * In the 5ESS, this feature requires the non-standard pre-ISDN arrangement using the ISDN 1 Message AP/ACP or 3A translator with the 5E4.2 Generic.

Note: ** In the DMS-100, BCS29 supports this feature on Residential Enhanced Services (RES).

2. This feature can only be offered on an Intraoffice basis.[#] [&]

3. The ESP's CPE used to receive and interpret the SMDI data must use the same signaling, control, and data communications protocol as the telephone office Input/Output channel. This channel uses a standard Electronic Industries Association (EIA) RS232 asynchronous 1200 or 9600 baud ASCII interface.

4. Reference for SMDI:

   - TR-NWT-000283, Simplified Message Desk Interface (SMDI) Generic Performance Requirements, Issue 2, May 1991, Supplement 1, December 1991.

This service, if offered as a BSE, may be associated with the Dedicated Network Access Link or Circuit Switched Line basic serving arrangement, as stated in each individual ONA plan.

[#] For Ameritech's AMSI-E service, this restriction does not exist. See Message Desk (SMDI) - Expanded in the Region Specific Section (Appendix 1) of this Guide for more information.

[&] For Southwestern Bell's Simplified Message Desk Interface - Expanded service, this restriction does not exist.

Message Desk (SMDI) - Expanded (1099)

The Message Desk (SMDI) - Expanded feature provides the 7 or 10 digit directory number of the voice messaging subscriber on calls forwarded by Call Forward Busy Line and Call Forward Don't Answer features to the message desk or Voice Message Provider's (VMP) Multiline Hunt Group (MLHG). The Message Desk (SMDI) - Expanded service will allow a message desk or a VMP to serve any station/subscriber within a Local Access Transport Area (LATA) from one host central office. The subscriber and the message desk or VMP must be served from central offices that are connected to the Common Channel Signaling System SS7 network.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Desk (SMDI) - Expanded	AM - Simplified Message Desk Interface-Expanded	BSE
	BA - Premier Messaging Services Interface	BSE
	BS - InterSwitch SMDI	BSE
	SWB - Simplified Message Desk Interface - Expanded	BSE
	USW - Message Delivery Service Interoffice	BSE

FEATURE OPERATION:

1. The message desk or VMP has the option of having 7 or 10 digit originating subscriber's directory numbers, as well as the reason the call is being forwarded, delivered to the message desk or VMP's Customer Premises Equipment (CPE). The information package to the message desk or VMP, delivered in real time over the Dedicated Network Access Link (DNAL), includes the MLHG and terminal identification of the call handler, call reason (call forward type or direct call), originating caller's directory number, and originally called number in the forwarding situation. Information will be passed over a DNAL when the CPE and the message desk or voice messaging subscribers are connected to the SS7 network. The message desk or VMP must have some type of CPE to receive and interpret the Simplified Message Desk Interface (SMDI) data.

2. The call forward type includes Call Forwarding Busy Line, Call Forwarding Don't Answer, Call Forwarding Variable (forwarding of all calls), and direct ESP call.

3. The DNAL may be utilized by the CPE to activate the stutter dial tone, more commonly known as the Message Waiting Indicator (See: Remote Activation of Message Waiting - Expanded, and/or Message Waiting Indicator - Ability to Activate Audible/Visual Message Waiting).

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE11.03*	5E7*	BCS30*

* ESP and End User's serving central offices must be interconnected with SS7.

2. The ESP's CPE used to receive and interpret the SMDI data must use the same signaling and data communications protocol as the telephone office Input/Output channel. This channel uses a standard Electronic Industries Association (EIA) RS232 asynchronous 1200 or 9600 baud ASCII interface.

3. Interconnection to the CPE is via standard outside plant cable, tip and ring connections.

4. Interface Description - Interface Between Customer Premises Equipment, Simplified Message Desk and Switching System: 1A ESS, Issue 1, July 1985.

5. References:

   - Ameritech Message Signal Interface (AMSI) and Ameritech Message Signal Interface - Expansion AM-TR-OAT-000065, Issue 1, July 1990.

   - Technical reference for Call Forwarding Busy Line and Call Forwarding Don't Answer can be found in Bellcore TR-TSY-000586, Call Forwarding Subfeatures, FSD 01-02-1450, Issue 1, July 1989.

This service, if offered as a BSE, is associated with the Dedicated Network Access Link serving arrangement.

Message Waiting Indicator - Activation (Audible) (1075)

This capability allows an ESP to indicate to its subscriber that a message is waiting for retrieval. With this capability, the ESP can activate an audible signal, e.g., stutter dial tone, on the ESP's client's line.

Activation of message waiting can be provided in limited switch types. The technology used is the same technology which supports the SMDI product. The input/output (I/O) port is used to recognize incoming messages from the ESP. Those incoming messages direct the switch to activate a message waiting indication on an ESP's client's line.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Waiting Indicator - Activation (Audible)	AM - Remote Activation of Message Waiting	BSE
	BA - Messaging Services Interface	BSE
	BS - SMDI	BSE
	NX - SMDI	BSE
	PB - Activate Message Waiting Indicator	BSE
	PB - Forwarded Call Information - Multiple Users	BSE
	SWB -Simplified Message Desk Interface	BSE
	USW - Message Delivery Service	BSE

FEATURE OPERATION:

1. An ESP's client can use call forwarding busy line (CFBL), call forwarding don't answer (CFDA), or call forwarding variable (CFV) to forward their calls to the ESP.

2. With appropriate line translations in Stored Program Control switches, an ESP can turn on or off a special recall dial tone (stutter dial tone) to notify their clients of an awaiting message. Whenever the client attempts to originate a call, the client receives stutter dial tone. This indicates to the client that a message(s) has been received by the ESP for the client. The client will receive stutter dial each time a call is attempted until the ESP sends a message to the switch to remove the stutter dialtone (MWI).

3. Messages to turn on/turn off the Message Waiting Indicator (MWI) are sent to the central office on an SMDI-type data link.

4. If the client DN does not have the MWI option assigned, is not a valid DN, or if the switch does not have enough resources to carry out the message waiting function, a message is sent to the ESP via the Input/Output channel.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8A	5E4.2*	BCS29**

Note: * In the 5ESS, this feature requires the non-standard pre-ISDN arrangement using the ISDN 1 Message AP/ACP or 3A translator with the 5E4.2 Generic.

Note: ** In the DMS-100, BCS29 supports this feature on Residential Enhanced Services (RES).

2. This feature can only be offered on an Intraoffice basis.

3. References for MWI:

   - TR-NWT-000283, Simplified Message Desk Interface (SMDI) Generic Performance Requirements, Issue 2, May 1991, Supplement 1, December 1991.

This service, if offered as a BSE, may be associated with the Dedicated Network Access Link or Circuit Switched Line basic serving arrangement, as stated in each individual ONA plan.

Message Waiting Indicator Activation (Audible) - Expanded (1100)

When an end user subscribes to Voice Message/Reminder service the end user should have the ability to forward calls to the Enhanced Service Provider's voice messaging service, leave a detailed message for those who may be calling, and have a recorded voice message left in response. When messages are left for the end user, a message waiting indicator should be provided indicating a message is waiting. The ability to remotely activate message waiting indicator to end user's lines not located in the same central office, but in the same Local Access Transport Area (LATA) as the ESP (Voice Message Provider), is made possible through the Common Channel Signaling System 7 (SS7) network.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Waiting Indicator Activation (Audible) - Expanded	AM - Remote Activation of Message Waiting - Expanded	BSE
	BA - Premier Messaging Services Interface	BSE
	USW - Message Delivery Service Interoffice	BSE

FEATURE OPERATION:

The subscriber to the ESP's service has calls forwarded to the ESP's 7 or 10 digit telephone number. The end user can use Call Forwarding Busy Line, Call Forwarding Don't Answer, Call Forwarding Variable, or direct call to reach the ESP's voice message service. The ESP can activate a message waiting indicator for end users not served by the same central office switch as the ESP as long as the called subscriber (end user) and the ESP's central office are connected via the SS7 network and are equipped with the appropriate software packages.

Messages from the Voice Message Provider:

Two message types may be sent by the voice message provider to the serving central office via a Dedicated Network Access Link (See: Message Desk (SMDI) - Expanded). The first message activates the Message Waiting Indicator (MWI) feature on a specified directory number, the second message deactivates the indicator. The ESP's serving central office does not acknowledge receipt of these messages unless it encounters a problem when attempting to execute the request.

There are two types of failure messages, invalid and blocked. The invalid message results from an attempt to activate or deactivate MWI on a directory number not assigned the MWI option. The failure message can also be generated when a directory number is transmitted with incomplete or inaccurate information. The blocked message indicates that the central office was momentarily unable to execute the message request.

The ESP's serving central office does not expect an acknowledgment signal indicating the activation/deactivation of MWI for the ESP.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE11.03*	5E7*	BCS30*

* ESP and end user's serving central offices must be interconnected with SS7.

2. The ESP's customer premises equipment (CPE) used to receive and interpret the SMDI data must use the same signaling and data communications protocol as the telephone office Input/Output channel. This channel uses a standard Electronic Industries Association (EIA) RS232 asynchronous 1200 or 9600 baud ASCII interface.

3. Interconnection to the CPE is via standard outside plant cable, tip and ring connections.

4. Interface Description - Interface Between Customer Premises Equipment, Simplified Message Desk and Switching System: 1A ESS, Issue 1, July 1985.

5. References:

   - Ameritech Message Signal Interface (AMSI) and Ameritech Message Signal Interface - Expansion AM-TR-OAT-000065, Issue 1, July 1990.

   - Technical Reference for Call Forwarding Busy Line and Call Forwarding Don't Answer can be found in Bellcore TR-TSY-000586, Call Forwarding Subfeatures, FSD 01-02-1450, Issue 1, July 1989.

This service, if offered as a BSE, is associated with the Dedicated Network Access Link serving arrangement.

Message Waiting Indicator - Activation (Visual) (1076)

This capability allows an ESP to indicate to its client that a message is waiting for retrieval. With this capability, the ESP can activate a visual alerting signal (usually a lamp) on the ESP's client's line.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Waiting Indicator - Activation (Visual)	AM - Remote Activation of Message Waiting	BSE
	BA - Messaging Services Interface	BSE
	BS - SMDI	BSE
	PB - Electronic Business Set Message Waiting	BSE
	USW - Message Delivery Service	BSE

FEATURE OPERATION:

MWI - Activation (Visual) is a central office software and hardware capability that allows an ESP with CPE, to activate a visual lamp or LCD on their subscriber's line when messages are being held (see MWI - Ability to Receive Visual Message Waiting). The subscriber's line, also with special CPE and central office software/hardware, would flash at 60 IPM when activated. After a subscriber picked up their messages, the ESP would have the ability to deactivate the client's visual message waiting indicator.

Message Waiting Indication, visual or otherwise, is controlled by a software package in the central office switch, usually Simplified Message Desk Interface (SMDI) or Message Desk Service. The software package will activate or deactivate a client's message waiting indication based on signals passed over an interface from the Message Desk Provider to the central office interface.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8	5E4.2* *ISDN	BCS29

2. The lamp is off when the ESP's client is off-hook or there are no messages queued and the client is on-hook.

3. This feature can only be offered on an intraoffice basis.

4. References: U S WEST reference publication 77335 - "U S WEST Message Waiting Indication - Visual," September 1990.

This service, if offered as a BSE, is associated with the Dedicated Network Access Link basic serving arrangement.

Message Waiting Indicator Activation (Visual) - Expanded (1101)

When an end user subscribes to Voice Message/Reminder service the end user should have the ability to forward calls to the Enhanced Service Provider's voice messaging service, leave a detailed message for those who may be calling, and have a recorded voice message left in response. When messages are left for the end user, a message waiting indicator should be provided indicating a message is waiting. The ability to remotely activate message waiting indicator to end user's lines not located in the same central office, but in the same Local Access Transport Area (LATA) as the ESP (Voice Message Provider), is made possible through the Common Channel Signaling System 7 (SS7) network.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Waiting Indicator Activation (Visual) - Expanded	AM - Remote Activation of Message Waiting - Expanded	BSE
	BA - Premier Messaging Services Interface	BSE
	USW - Message Delivery Service - Interoffice	BSE

FEATURE OPERATION:

The subscriber to the ESP's service has calls forwarded to the ESP's 7 or 10 digit telephone number. The end user can use Call Forwarding Busy Line, Call Forwarding Don't Answer, Call Forwarding Variable, or direct call to reach the ESP's voice message service. The ESP can activate a message waiting indicator for end users not served by the same central office switch as the ESP as long as the called subscriber (end user) and the ESP's central office are connected via the SS7 network and are equipped with the appropriate software packages.

Messages from the Voice Message Provider:

Two message types may be sent by the voice message provider to the serving central office via a Dedicated Network Access Link (See: Message Desk (SMDI) - Expanded). The first message activates the Message Waiting Indicator (MWI) feature on a specified directory number, the second message deactivates the indicator. The ESP's serving central office does not acknowledge receipt of these messages unless it encounters a problem when attempting to execute the request.

There are two types of failure messages, invalid and blocked. The invalid message results from an attempt to activate or deactivate MWI on a directory number not assigned the MWI option. The failure message can also be generated when a directory number is transmitted with incomplete or inaccurate information. The blocked message indicates that the central office was momentarily unable to execute the message request.

The ESP's serving central office does not expect an acknowledgment signal indicating the activation/deactivation of MWI for the ESP.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE11.03*	5E7*	BCS30*

* ESP and end user's serving central offices must be interconnected with SS7.

2. The ESP's customer premises equipment (CPE) used to receive and interpret the SMDI data must use the same signaling and data communications protocol as the telephone office Input/Output channel. This channel uses a standard Electronic Industries Association (EIA) RS232 asynchronous 1200 or 9600 baud ASCII interface.

3. Interconnection to the CPE is via standard outside plant cable, tip and ring connections.

4. Interface Description - Interface Between Customer Premises Equipment, Simplified Message Desk and Switching System: 1A ESS, Issue 1, July 1985.

5. References:

   - Ameritech Message Signal Interface (AMSI) and Ameritech Message Signal Interface - Expansion AM-TR-OAT-000065, Issue 1, July 1990.

   - Technical Reference for Call Forwarding Busy Line and Call Forwarding Don't Answer can be found in Bellcore TR-TSY-000586, Call Forwarding Subfeatures, FSD 01-02-1450, Issue 1, July 1989.

This service, if offered as a BSE, is associated with the Dedicated Network Access Link BSA.

Network Reconfiguration (1038)

This feature provides ESPs flexibility in managing and reconfiguring their dedicated facilities. This arrangement involves providing to a customer access to a control port on a digital cross-connect system (DCS). This service enables the re-connection (grooming) of one to 24 DS0 channels within a group of DS1s such that the destination of each DS0 can be changed. Reconfiguration at higher or lower transmission speeds may also be provided. A subscriber could control their dedicated channels in any combination between locations designated on their private network.

Generic Name of ONA Service	Product Name	BSE or CNS
Network Reconfiguration	AM - Ameritech Network Reconfiguration Service	BSE
	BA - INTELLIMUX[SM]	BSE
	BS - FlexServ®	BSE or CNS
	NX - Network Reconfiguration Service	BSE
	PB - Customer Network Reconfiguration	BSE
	SWB - Network Reconfiguration	BSE
	USW - COMAND A LINK[SM]	BSE

FEATURE OPERATION:

Network Reconfiguration under ESP control is initialized by setting up a database for ESP access consisting of circuit identifications, customer locations, security passwords, etc. This database is then accessed by the ESP to make their own DS1 or DS0 routing rearrangements within a Digital Cross-connect System (DCS).

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available only in conjunction with Digital Cross-connect System (DCS) frames located in the telephone company Hub and/or Digital Serving Node locations. ESP/ESP's client facilities will have to route to the above mentioned DCS frames.

2. Check with your local telephone company in order to determine availability of Extended Superframe Format (ESF) with Network Reconfiguration.

3. All bridging and subrating of services is to be provided outside of the DCS devices. The DCS devices are only used for cross-connecting DS0s.

4. References:

   - TR-NWT-000170 Digital Cross-Connect System (DSC 1/0) Generic Criteria, Issue 2, January 1993.

   - TR-NWT-000233 Wideband and Broadband Digital Cross-Connect Systems Generic Criteria, Issue 3, November 1993.

[SM] INTELLIMUX is a service mark of Bell Atlantic.

® FlexServ is a registered trademark of BellSouth Corporation.

[SM] COMAND A LINK is a service mark of U S WEST.

- Ameritech reference AM-TR-TMO-000064, Issue 2, August 1991, Ameritech Reconfiguration Interface Specifications.

- U S WEST publication 77371 COMAND A LINK[SM] Technical Descriptions and Interface Combinations, Issue B, November 1994.

This service, if offered as a BSE, is associated with the Dedicated Network Access Link or Dedicated High Capacity digital (1.544 Mbps) basic serving arrangements, as indicated in each individual ONA plan.

[SM] COMAND A LINK is a service mark of U S WEST.

APPENDIX 1

July 31, 1998

1. Appendix 1 - Region Specific Services - Technical Descriptions for Basic Serving Arrangements

Dedicated Digital (64 Kbps **)

** NOTE - this capability was moved to the main section of the ONA Services User Guide for the July 1993 update.

ATM Cell Relay Service (8040)

ATM Cell Relay Service (ATM CRS) is a connection-oriented communications service that uses Asynchronous Transfer Mode (ATM) technology. The service provides customers with high-speed, low-delay information transfer capacity, which supports applications that require near-real-time mixed media (data, video, image, voice) communications among multiple locations. ATM CRS supports transmission speeds of either up to 45 Mbps or up to 155 Mbps.

ATM CRS requires the use of customer terminal equipment that functions as a multiplexer/router/hub or ATM switch. This terminal equipment must be purchased separately from the ATM CRS and must conform to industry standards. The terminal equipment accumulates customer traffic and puts it into a cell relay format suitable for transmission over the ATM CRS Network.

ATM CRS conforms to industry standards and is only provided over fiber optic facilities. Technical Specifications for ATM CRS are delineated in Technical Publication PUB 77378 (U S WEST).

Generic Name of ONA Service	Product Name	
ATM Cell Relay Service	USW - ATM Cell Relay Service	BSA

Frame Relay Service (4027,5037,8039)

This service provides fast packet transmission of customer data to and among Local Area Networks and host computers. Using statistical multiplexing, it allows customers to allocate circuit bandwidth to applications as needed and as available. Variable length frames are relayed from the source to the desired destination by means of virtual connections which are established at the time of subscription via Service Order.

This arrangement requires the use of separately purchased customer provided terminal equipment that functions as a multiplexer/bridge/router. The terminal equipment accumulates customer data and puts it into a frame relay format for transmission over the Frame Relay Network.

Generic Name of ONA Service	Product Name	
Frame Relay Service	BS - Exchange Access Frame Relay Service	BSE
	NX - Frame Relay Service	BSA
	USW - Frame Relay Service	BSA

References:

- TR-TSV-001369 Generic Requirements for Frame Relay PVC Exchange Service, Issue 1, May 1993
- TR-TSV-001370 Generic Requirements for Exchange Access Frame Relay PVC Service, Issue 1, May 1993

MegaBit Service (8041)

MegaBit Service utilizes Digital Subscriber Line (DSL) technology to provide customers with both voice and high-speed data services over metallic local loop facilities. This service allows the Company to accept traffic from the customer and separate the voice from the data, sending each type of traffic to the appropriate, separate network.

MegaBit Service allows the end user to transmit data at peak bandwidths ranging from 256 kbps to 7 Mbps. Multiple end users' data transmissions are aggregated onto a central office hub transmitting at peak bandwidths of 1.544 Mbps, or 3 Mbps up to 45 Mbps (in 3 Mbps increments).

Generic Name of ONA Service	Product Name	
MegaBit Service	USW - MegaCentral	BSA/BSE
	USW - MegaSubscriber	CNS

References: Technical specifications for MegaBit Service are delineated in U S WEST Technical Specification Paper #60000-006 CAP RADSL (Netspeed).

Trunk Side Access Facility (4003)

This capability provides a trunk side connection from a Traffic Operator Position System (TOPS) Tandem switch to an ESP's premises. This connection will be a dedicated one way trunk group from each of the TOPS Tandem switches serving the end offices the ESP wishes to receive traffic from. This trunk group is designed to deliver the called number (UAN) and calling line ANI from the TOPS Tandem switch to the ESP. Feature Group D-like signaling will be used to communicate with the ESPs CPE.

This capability will only be available in the General Subscribers Services Tariff and only in conjunction with Uniform Access Number.

Generic Name of ONA Service	Product Name	
Trunk Side Access Facility	BS - Trunk Side Access Facility	BSA

References: not available.

Video Dialtone Access Link (3010)

A Video Dialtone Service that provides for the transport of video and other programming signals.

Generic Name of ONA Service	Product Name	
Video Dialtone Access Link	BA - VDT - Access Link	BSA

FEATURE OPERATION:

Video Dialtone Direct Access Link provides a connection from the Programmer-Customer's designated location to a Telephone Company Video Distribution Office and is capable of transporting up to a maximum of ninety-six (96) 6 megabyte/sec MPEG2 [MPEG - Motion Picture Experts Group] digital signals. Video Dialtone Access Links are one-way, from the Programmer-Customer to the Video Dialtone Distribution Office, and require that the Programmer-Customer meet the interface specifications found in Bell Atlantic Technical Publication TR-72550.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

For interface publications, see Bell Atlantic Technical Publications TR-72550 and TR-72211.

Also see BroadBand Technologies Technical Publication TESP-0106. Contact information for BroadBand Technologies, Inc.:

BroadBand Technologies, Inc.

Suite 150, Triangle Business Center

4024 Stirup Creek Drive

Durham, NC 27703

Post Office Box 13737

Research Triangle Park, NC 27709-3737

Telephone: 919 544-0015

Fax: 919 544-5356

This service is offered where available and facilities permit.

555 Access Service (8038)

This service provides access to ESPs by their clients using a 555-XXXX telephone number. The service enables the ESP to have a uniform, LATA-wide, 10 digit (NPA-555-XXXX) telephone number. The same 555 number could be used in multiple LATAs where service is available.

Generic Name of ONA Service	Product Name	BSE or CNS
555 Access Service	USW - 555 Access Service	BSA

FEATURE OPERATION:

1. When a caller dials the unique 555 telephone number (1-NPA-555-XXXX) within a LATA, the call is routed to the caller's originating end office and then to the associated Traffic Operator Position Switch (TOPS) that serves the end office.

2. At the TOPS tandem the 555 call is translated into a unique 800 NXX-XXXX telephone number which is associated with each 555 telephone number or group of 555 telephone numbers. (The 800 telephone number is obtained by the 555 service subscriber.) [Note: 888 is now equivalent to 800.]

3. After the call is translated into an 800 telephone number, the 800 database is queried to identify the 555 Service subscriber's call routing instructions.

4. The 555 call is then routed in the standard Feature Group D format which includes the calling number, the called number (800 telephone number) and Automated Number Identification (ANI) information digits. ANI information digits are the digits that precede the calling number on the ANI record. ANI information digits inform the 555 Service subscriber of the calling party's class of service for billing, routing and other special handling purposes.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The calling party, the TOPS tandem and the 555 subscriber's routing point must be in the same LATA. The routing point can be either the 555 subscriber's location or to their carrier of choice. In LATAs where more than one TOPS tandem is present, the 555 Service subscriber must subscribe to 555 Service from both TOPS tandems.

2. Calls from outside the LATA will be blocked. Blocking also applies to "0 minus" (e.g., for the hearing impaired, etc.), "0+" calls, and restricted classes of service.

3. This capability is currently available only from suitably equipped DMS-200 Traffic Operator Position Switches.

2. Appendix 1 - Region Specific Services - Technical Descriptions for Circuit Switched Serving Arrangements

AIN Alternate Routing (4028)

This service allows customers to establish predetermined alternate routing plans for incoming voice and data traffic (e.g., MLHG, DID). Incoming calls can be rerouted to multiple (or a different) locations and/or announcements during varied emergency situations.

Generic Name of ONA Service	Product Name	BSE or CNS
AIN Alternate Routing	BS - CrisisLink[SM]	CNS

FEATURE OPERATION:

At the time this service is established, the customer predefines a set of directory numbers (DNs) to be protected in the event of a crisis. All DNs in the set receive the same default alternate handling when the service is activated. The DN set is loaded through the AIN Service Management System (SMS) into the Switching Control Point (SCP), where it remains dormant until activated via customer request to the Service Center. When a customer calls to activate their service, they may activate their default treatment, or may specify changes at the time of activation.

As an example, the incoming calls to a customer can be rerouted to the predefined DNs as follows:

— A% of calls are redirected to Backup DN 1

— B% of calls are redirected to Backup DN 2

— C% of calls are redirected to Backup DN 3

— D% of calls are redirected to a DN associated with a customized announcement

— E% of calls are completed to the number originally dialed (partial crisis/restore)

— F% of calls are sent to a standard switch based announcement

This service uses two AIN 0.1 triggers: the Public Office Dialing Plan (PODP) trigger and the Termination Attempt Trigger (TAT).. The distinction between the two is as follows:

- A PODP trigger is assigned to DNs which are served by a 5ESS terminating SSP (ASP Release 0.1B or later).
- A TAT is assigned to NDs which are served by a DMS-100 terminating SSP (NA003 or later).

[SM] CrisisLink is a service mark of BellSouth Corporation.

AIN Single Number Access (4030)

This service allows a data network provider to deliver one-number local call access to their online offerings from anywhere in an RBOC's serving area. All charges for access are billed to the data network provider enabling them to cost-effectively expand service throughout the region, while calling charges are aggregated on a regionwide basis to ensure low per-minute cost.

Generic Name of ONA Service	Product Name	BSE or CNS
AIN Single Number Access	BS - DataReach[SM]	BSE

FEATURE OPERATION:

At the time this service is established, a data network provider is assigned a number in a dedicated NXX. This 7-digit number can be reserved for the customer throughout the RBOC serving area. Based on the wire center of the originating party, the call is forwarded to a provider-designated location within the originating LATA. This service uses the Public Office Dialing Plan (PODP) trigger to determine the proper routing for the call.

[SM] DataReach is a service mark of BellSouth Corporation.

AIN Terminating Data Collection/Customized Routing (4029)

This service provides a customer with pertinent terminating traffic data information as well as the capability for customized routing arrangements.

Generic Name of ONA Service	Product Name	BSE or CNS
AIN Traffic Data/Routing	BS - AdWatch®	CNS

FEATURE OPERATION:

The customer's Directory Number (DN) becomes a "virtual" number either by reusing the customer's existing number (if it resides in a 5ESS switch), or by assigning the customer a new number in a 5ESS switch.

The customer's "virtual" number is listed as the customer's number in the Directory. Calls directory to this number can be handled as follows:

Data Collection

— counts of calls made to the virtual number including the calling party number

— call detail based on calls that receive busy or don't answer

— the customer is able to access the service via a VT100 terminal at up to 19.2 kbps, and the customer will be able to view and download call records.

Routing Functionality

— routing by day of week/time of day/% distribution to up to three locations

— routing from the virtual number to a set of locations based on geographic origination of the call

® AdWatch is a registered trademark of BellSouth Corporation.

Automatic Disaster Recovery of DID (5010)

This capability enables an ESP with multiple wire centers to provision the same Direct Inward Dialing (DID) numbers to automatically transfer to an alternate wire center in the event of a failure. The DID number will reside at the normal serving wire center. The wire centers must be connected by 1.544 Mbps interoffice facilities.

Generic Name of ONA Service	Product Name	BSE or CNS
Automatic Disaster Recovery of DID	NX - DID/DOD Disaster Recovery Service	BSE

FEATURE OPERATION:

This feature is activated in the event of a failure in the loop between the normal wire center and the customer premises. Incoming calls to lines connected to the normal wire center will be rerouted over the 1.544 Mbps trunks to the alternate wire center for completion. PBX customers obtain DID service from their normal serving wire center and an alternate wire center designated by the telephone company. DID service from the normal wire center and the alternate wire center will share an NXX that will reside at the normal wire center.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	5ESS	DMS-100
Earliest Generic Release	5E2	BCS27

2. Outgoing calls from the alternate wire center will not be affected.

Automatic Delivery (2019)

When an end user encounters a busy or don't answer condition on outgoing calls, this feature automatically forwards the calling party's call to a predetermined, dialable number served by the same or different central office switch.

Generic Name of ONA Service	Product Name	BSE or CNS
Automatic Delivery	AM - Automatic Delivery	CNS

FEATURE OPERATION:

This feature, where available, will forward calls from POTS and business lines to a dialable number.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	5ESS	DMS-100
Earliest Generic Release	5E12	NA 006

References: not available

This service, if offered as a BSE, is associated with the Circuit Switched Trunk Type BSA.

Bridging - Line (5001)

This provides the ability to connect an end user's switched exchange service to an ESP (e.g., telephone answering or voice messaging service provider). This capability is the traditional bridged service that provided answering services with a direct connection to the client's line.

Generic Name of ONA Service	Product Name	BSE or CNS
Bridging - Line	NX - Bridging (Secretarial)	BSE

Reference: LSSGR FR-64 (formerly FR-NWT-000064), FSD 20-02-2010, Bridge Services On An IDLC System, Issue 1, September 1989, Module TR-TSY-000672.

This service, if offered as a BSE, is associated with the Circuit Switched Line serving arrangement.

Call Denial On Line Or Hunt Group (6004)

This screening option limits terminating Circuit Switched Line calls to completion within the LATA where the Circuit Switched Line resides. InterLATA and International calls are blocked, as well as calls which may potentially terminate outside the LATA. The Call Denial option allows calls to terminate to any NXX within the LATA served by the Circuit Switched Line that does not have a special charge associated with it. Blocked calls are routed to a reorder tone or recorded announcement.

Call Denial On Line Or Hunt Group is useful to 900 services and the ESP industry for fraud control.

This feature is provided in all electronic end offices and, where available, in electro-mechanical end offices.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Denial On Line Or Hunt Group	PB - Call Denial On Line Or Hunt Group	BSE

Reference GR-334, Switched Access Service: Transmission Parameter Limits and Interface Combinations, Issue 1, June 1994 (replaces TR-NWT-000334, Issue 3).

This service, if offered as a BSE, is associated with the Circuit Switched Line basic serving arrangement.

Call Detail Recording Reports - via NXX Screening (8014)

This service provides for call detail information to be recorded and made periodically available to ESPs via paper or magnetic tape format. The ESP is assigned a unique NXX code which alerts the originating central office to record call detail. Call detail includes: billing name, address and phone number; calling and called number; message date; and connect and disconnect time. Call detail is provided only for intraLATA calls. The ESP does not have to obtain access via Feature Groups A or D in order to obtain this service.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Detail Recording Reports - via NXX Screening	USW - Network Access Service	BSE

Reference LSSGR FR-64 (formerly FR-NWT-000064), FSD 02-02-1200, LSSGR: Traffic Data Provision Features, Issue 1, October 1990, TR-NWT-000621.

This service, if offered as a BSE, is associated with the Circuit Switched Line basic serving arrangement.

Call Forwarding Originating (2003)

Call Forwarding Originating is an optional basic service which is provisioned as an originating subscriber feature. It is responsible for detecting a busy or no-answer condition, and when detected, can invoke an announcement which offers the caller an option to leave a message. Call Forwarding Originating provides a trigger initiative to query the AIN Service Control Point (SCP) for routing information to direct the caller to their messaging provider of choice.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Forwarding Options	AM - Special Delivery Service	CNS

FEATURE OPERATION:

Since the end office portion of the feature can only route to one telephone number, AIN functionality is combined with this feature to provide the capability to route to multiple providers. The AIN SCP stores a table that maps the originating telephone number to a chosen messaging provider. When the SCP is queried, the appropriate provider's telephone number is returned to the end office for final routing. The SS7 links will transport call set-up information (ISUP) between each end office, as well as provide connectivity to and from the SCP for call monitoring and routing information. The STP switches are responsible for routing SS7 messages to the appropriate AIN node (i.e., SCP, end office, tandem, etc.). This feature is modified on a line basis by a service order.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	DMS-100
Earliest Generic Release	NA-004

References: Not available.

Call Forwarding To Multiple Locations (6002)

This capability allows a subscriber/user to selectively redirect calls arriving at his/her station set to two (and sometimes more than two) different answering points including multiple messaging services based on specific call situations.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Forwarding To Multiple Locations	PB - Dual Telephone Coverage	CNS

References: Not available.

This service, if offered as a BSE, is associated with the Circuit Switched Line type basic serving arrangement.

CFDA To DID Intraswitch (8022)

Call Forwarding Don't Answer to DID Intraswitch allows calls to be forwarded to a DID number served from the same central office as the forwarded call when the called number fails to answer. This service is associated with DID service in 1A ESS central office switches and allows the DID trunk to receive calls forwarded on a Don't Answer basis from lines equipped with Call Forwarding Don't Answer. The called number and the forwarded-to number must be in the same central office switch.

Generic Name of ONA Service	Product Name	BSE or CNS
CFDA To DID Intraswitch	BS - CFDA	CNS *
	USW - Expanded Answer	CNS

References: not available.

* This capability is inherent in certain 1A ESS central office switches.

Call Transfer On DID (3002,4026,8034)

This capability allows an ESP with Direct Inward Dial (DID) trunks to add another party to an established incoming call, to perform a three way conference. After establishing the conference, the ESP may drop from the connection without disconnecting the remaining two parties. This action allows the ESP to transfer specific calls and free the ESP's line to receive another call.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Transfer On DID	BA - 2-Way DID & Call Transfer	BSE
	BS - User Transfer On DID	BSE
	USW - DID 2-Way Call Transfer	BSE

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS
Earliest Generic Release	1AE8A	5E2

2. The DID trunk must be 2-way with E&M signaling.

3. In the 5ESS central office switches, the DID trunk must have DTMF capabilities.

This service, if offered as a BSE, is associated with the Circuit Switched Trunk basic serving arrangement.

Call Waiting (2005,3017,4018,5005)

The Call Waiting (CW) feature informs a busy station user, by a burst of tone, that another call is waiting. The busy station user may hang up and answer the second call or can place the original call on hold and answer the second call.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Waiting	AM - Call Waiting	CNS
	BA - Call Waiting	CNS
	BS - Call Waiting	CNS
	NX - Call Waiting	CNS
	PB - Call Waiting	CNS
	USW - Call Waiting	CNS

FEATURE OPERATION:

An incoming call to a busy line with CW receives audible ringing. The line with Call Waiting receives a CW tone that is repeated once about 10 seconds after the initial burst of tone.

The line with CW may respond to the CW tone in one of three ways. The called party may disconnect from the existing call. The telephone will then be rung and, if answered, the called party will be connected to the waiting call. The second alternative allows the line with Call Waiting to flash the switch-hook (.75 to 1.5 seconds) and, thereby, place the original call on hold and connect to the incoming call. The party with CW may alternate between calls by flashing the switch-hook. The third alternative is not to respond to the CW tone.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8	5E2	BCS17

2. If a line has Call Forwarding Busy Line (CFBL) and CW, the CW service normally takes precedence.

3. Given that a line has both CFBL and CW and is in the talk state, the first call attempting to terminate is treated as a CW call. Subsequent termination attempts are call forwarded.

4. On a line with both a make-busy key and CW, make-busy key takes precedence when the key is activated.

5. References:

   - LSSGR FR-64 (formerly FR-NWT-000064), FSD 01-02-1201 Call Waiting, Issue 1, October 1989, Revision 1, June 1991, TR-TSY-000571.
   - Business Group Call Waiting FSD 01-02-1205, Issue 1, October 1989, TR-TSY-000573.
   - TR-TSY-000219 CLASS[SM] Feature: Distinctive Ringing/Call Waiting, LSSGR FSD 01-01-1110, Issue 2, November 1988, Revision 1, May 1992.

This service, if offered as a BSE, is associated with the Circuit Switched Line basic serving arrangement.

[SM] CLASS is a service mark of Bellcore (Bell Communications Research, Inc.)

Call Waiting With Forwarding Options (6001)

This service has been merged with Generic Service #1093 (Call Forwarding Don't Answer After Call Waiting). This change was made for the January 1996 update of the ONA Services User Guide.

Called/Calling Number Information - ANI (4005)

Automatic Number Identification (ANI) provides the delivery of the calling party station billing number and called number to a customer during call establishment.

A one-way dedicated trunk group is provided between the end offices and the Traffic Operator Position System (TOPS) Tandem switch. These trunks provide the called number and ANI information to the TOPS Tandem switch. The TOPS Tandem switch provides the software and hardware capability used to support the ANI service. A dedicated customer trunk group from the TOPS Tandem switch to the customer's location provides the connection for ANI and called number delivery to the customer.

Uniform Access Number (UAN) service is required to support ANI service.

Generic Name of ONA Service	Product Name	BSE or CNS
Called/Calling Number Information - ANI	BS - Automatic Number Identification	BSE

References: not available.

This service, if offered as a BSE, is associated with the Circuit Switched Trunk basic serving arrangement.

Coin Phone With Post Dialing Tone Capability **

** NOTE - this capability was moved to the main section of the ONA Services User Guide for the July 1993 update.